

SEVERE LOCAL STORMS, JULY 1941

[Compiled by MARY O. SOUDER]

[The table herewith contains such data as has been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Cortland, N. Y.	1					Thunderstorm	Many trees and limbs blown down, causing much damage to phone and power lines.
Roaz, N. Mex.	2	4 p. m.	50	0	\$1,000	Tornado and hail	Large trees uprooted; several small buildings demolished.
Grenville, N. Mex.	2	4:20-7 p. m.	14		15,000	Hail and rain	Loss to crops.
Pueblo, Colo., and vicinity	2	4:30-4:50 p. m.			155,000	Hail	The storm center was in the 1700-1900 blocks of the Park Hill district. Florists estimated about 16,000 square feet of glass in greenhouses were knocked out with much damage to perennial gardens and flowers. Loss to crops, \$125,000; property damage, \$30,000.
Walsenburg, Colo.	2	6 p. m.	11		40,000	Heavy hail	Loss in winter wheat; some property damage.
Waterdale, Colo.	3	3 p. m.	12		16,000	do.	Loss to grain crops, \$16,000; some roofs damaged.
Brush, Akron, and Fleming, Colo.	3	4 p. m.	12-4		45,000	do.	Loss in small grain.
Blaine County, Mont.	3	4-5 p. m.	14		50,000	Heavy hail and rain.	Loss in sugar beets, grain, and garden crops; path 7 miles long.
Boise City, Okla., and vicinity	3	4-6 p. m.	13		15,000	Hail.	Loss confined to crops practically all to winter wheat; path 25 miles long.
Genoa, Colo.	3-5	P. m.	1-3			Heavy hail.	About 50 percent of grain crops destroyed.
Clayton, N. Mex.	4	2:45-4:50 a. m.			8,400	Rain and electrical.	Loss to crops, \$8,000; damage to roads, \$200; loss to livestock, \$200.
Walworth, Potter, Hughes, and Washabaugh Counties, S. Dak.	4	4-9 p. m.			15,000	Heavy hail and rain.	Partial or complete loss to crops in places; some buildings wrecked; path narrow.
Haxtun, Colo.	4	4 p. m.	15		21,000	Heavy hail.	Property damage, \$1,000; loss in winter wheat, \$20,000.
Lyon, Redwood, Brown, Watonwan, Blue Earth, and Martin Counties, Minn.	5	3-6:30 p. m.			80,000	Thundersquall and hail.	Property damaged by wind, \$5,000; hail damage, \$75,000.
Rencona and Villanueva, N. Mex.	6	1-4 p. m.	880		1,300	Heavy hail.	Loss to crops.
Lamar, Colo.	6	2 p. m.	18		10,000	do.	Loss in grain, alfalfa, and row crops.
Waterloo, Iowa	7	1:40 p. m.			32,000	Hail and wind.	Loss in crops, \$20,000; property damaged.
Vanderburg County, Ind.	7	3 p. m.	15		2,000	do.	Property damaged, \$2,000; small crop loss.
Tipton County, Ind.	7	5 p. m.	11		20,000	do.	Loss to crops.
Hamilton County, Ind.	7	6:30 p. m.	14		2,000	Wind.	Do.
Oskaloosa, Iowa, vicinity of Cleveland, Ohio.	7	P. m.			2,000	Electrical.	Barn burned.
	7	do.		3	10,000	Wind, heavy rain, electrical.	This storm general over the State; 3 persons killed by lightning.
Rush County, Ind.	7	7:30 p. m.	1,320		4,000	Wind.	Property damage, \$1,000; loss to crops, \$3,000.
Hancock County, Ind.	7				500	Wind and hail.	Loss to crops, \$500; property damaged.
Cedaredge, Colo.	8	4:30 p. m.	1,320		20,000	Heavy hail.	Loss in grain and fruit.
Loveland, Colo.	8	5 p. m.	15		50,000	do.	Loss in wheat, corn, alfalfa, and cherries.
Fairview, Powhattan and Hawatha, Kans.	9	4:30-6 p. m.	13		15,000	do.	Property damaged; path 16 miles long.
Lynch, Nebr.	9	10:30 p. m.	2,540		25,600	Wind and hail.	Loss to crops; property damaged.
Calhoun County, Iowa	10	3 a. m.	16		150,000	do.	Hail caused great damage to crops ranging up to 50 percent of corn and estimated as cutting oat yields from 5 to 15 bushels per acre. This reported to be the worst storm since July 1911.
Antelope County, Nebr.	10	do.	12		10,000	Hail.	Loss in corn and wheat.
Monona County, Iowa	10	4:55 a. m.	14		25,000	Wind and hail.	Damage to buildings by wind, \$25,000; loss in crops not estimated.
Des Moines, Iowa	10	7:30 a. m.			500	Thunderstorm.	Streets flooded, delaying traffic; wires and trees down; roof of church struck by lightning and burned.
Cedar County, Iowa	10	11 a. m.	12		15,000	Wind, rain and hail.	Buildings on 6 farms wrecked or damaged. Heavy rain flooded fields and caused some damage to crops and roads.
Olpe to Neosho Rapids, Kans., and vicinities.	10	3 p. m.			15,000	Heavy hail.	Loss in crops over a path 15 miles long.
Kingsfisher, Okla.	10	3:15-4:15 p. m.	1,800		750	Straight-line-wind and rain.	Property damaged.
Berthoud to Fort Collins, Colo.	10	4:30 p. m.	12		102,500	Heavy hail.	Small grains, row crops, fruit and beets heavily damaged; loss over \$100,000; property damage, \$2,500.
Fairmount, Minn., and vicinity	10	do.	13		12,000	Thundersquall and hail.	Loss to crops from hail to Martin County, \$10,000; path 20 miles long.
Wisner to Beemer, Nebr.	10	5 p. m.	440		1,500	Hail.	Loss to grains over a small area.
Roscoe to Nolan, Tex.	10	5:30-6:30 p. m.	11-3			do.	Much loss in cotton, sorghum, and grain crops; amount unknown.
Wichita, Kans., 10 miles north.	10	5:40-6 p. m.	110		8,000	Wind and hail.	An extreme wind velocity of 63 miles per hour recorded. Property damaged; path 40 miles long.
Schuyler, Nebr., vicinity of Maxwell, N. Mex.	10	6-7 p. m.	11		5,000	Hail.	Principal loss in barley and oats over an area about 10 miles long.
Pondera County, Mont.	11	3-4:15 p. m.	12		10,000	do.	Loss to crops.
Juan Tomas to Chilili, N. Mex.	11	P. m.	11		3,000	Hail and rain.	Chief damage to gardens, wheat, oats and alfalfa; path 3 miles long.
Mayhill, N. Mex.	11				6,000	Heavy hail.	Loss in corn and pinto beans; path 10 miles long.
Canon City, Colo.	12	Noon-4 p. m.			2,300	do.	Loss in crops, \$1,800; damage to farm land, \$500.
Craig, Colo.	12	1 p. m.	1,320		1,000	do.	Loss in fruit and crops.
Teos Canyon, N. Mex.	12	4 p. m.	15		900	do.	Loss in small grain.
Huntington, Ohio	12	4:15-5 p. m.	3,089		1,000	do.	Loss in crops.
	12	6:25-8:30 p. m.			9,500	Thunderstorm.	3.24 inches of rain recorded. Damage by lightning, flooding of basements and crumbling of foundations, estimated at \$3,000. Damage by landslides and clogging of sewers, \$1,500.
Trinidad, Colo.	13	3:15 p. m.	14		10,000	Heavy hail.	Loss in small grains and beans.
Villanueva and Sena, N. Mex.	15	2-4 p. m.	12		1,500	do.	Loss in crops.
Cerro Gordo County, Iowa	17	7 p. m.	11		25,000	Hail, rain, and wind.	Property damaged; trees, shrubs, corn, small grain, and truck damaged by hail and rain. Greatest damage in area 1 mile wide.
Winnebago County, Iowa	17	do.	110		30,000	Hail and wind.	A farm residence and outbuildings badly damaged; lesser damage at other locations. Much loss to crops on at least 60 farms; total loss unknown, but may be near \$75,000. This reported to have been one of the worst hailstorms of record in this county.
Gamerco, N. Mex.	17	12:15-12:40 p. m.	12		1,500	Heavy hail.	Loss to crops.
Central and extreme southwestern counties, Minnesota.	17	2:30-7:30 p. m.			767,000	Thundersqualls and hail.	Damage to property from wind over a path 3 miles wide and from 40 to 200 miles long was \$17,000. Hail damage to property and loss to crops over a path 20 to 55 miles long was \$749,400.
Floyd County, Iowa	17	9 p. m.	11		5,000	Wind and hail.	Electric service interrupted; wires and trees down; property damaged.
Linn County, Iowa	17	10 p. m.	880		30,000	Wind, hail, and rain.	Loss estimated at one-third of crops in an area 6 or 7 miles long.
Minneapolis and St. Paul, Minn., and vicinity.	17	P. m.			3,000	Electrical.	Property damaged; 2 radio towers, built to stand high wind and valued at \$7,500 each, blown down.
Minnehaha County, S. Dak.	17	do.	2,640		2,000	Wind and hail.	Several places struck by lightning and damaged.

1 Miles instead of yards.

SEVERE LOCAL STORMS, JULY 1941—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Hancock County, Iowa.....	17				2,000	Wind, hail, electrical.	Barn burned; some loss in crops.
Columbia, S. C., and vicinity.	17				20,000	Rain and flood....	Streets, roads, and property damaged; 3.71 inches of rain recorded.
Mays County, Okla.....	18	4 p. m.....	13		2,000	Hail.....	Loss in crops, \$1,900; property damage, \$100; path, 6 miles long.
Crescent, Okla., northeast of.	18	4:10 p. m.....	12		40,000	Wind and hail....	Crop loss, \$35,000; property damage, \$5,000; path, 12 miles long.
Posey and Vanderburgh Counties, Ind.....	18	5 p. m.....	12		25,000	do.....	Crop damage, \$10,000; property damage, \$15,000.
Columbia County, Wash.....	18				75,000	Hail.....	Report made on combined damage from 2 storms.
Walla Walla, Franklin and eastern Benton Counties, Wash.	18				40,000	Electrical.....	Pasturage ruined; wheat burned.
Ithaca, N. Y., and vicinity.	19					Thunderstorm....	Lightning and falling trees caused much damage to telephone and power lines.
Virden, N. Mex.....	20	4:05-4:35 p. m.....	587		8,500	Heavy hail.....	\$8,000, loss to crops; \$500, damage to roofs.
Ainsworth, Nebr.....	20	6-7 p. m.....	13		25,000	Hail and wind....	Chief damage to corn from hail; property damaged; path 9 miles long.
Progresso and Cedarvale, N. Mex., vicinity of.	21	4-5:30 p. m.....	1-3		10,000	Heavy hail.....	Loss to crops.
Raymond, Nebr.....	21	6 p. m.....	11		4,000	Wind and hail....	Loss in small grain from hail; property damaged; man injured.
Weeping Water, Nebr., vicinity of.	21	7 p. m.....	11		4,000	do.....	All small buildings on a farm leveled; loss to corn and other crops on 2 farms.
Truchas, N. Mex.....	21		12		2,000	Heavy hail.....	Loss in crops.
Kenosha County, Wis., southeastern portion.	22				700	Thundersquall....	Loss to crops, \$500; property damage, \$200.
Ada, Minn., and vicinity....	23	11:30 p. m.....			20,000	Thundersquall and hail.	Loss to growing crops from hail, \$5,000; property damages by wind, \$15,000; path 5 miles long.
Molson, Wash.....	24	4:30 p. m.....	11		3,000	Hail.....	Property damaged.
Vanderburg County, Ind.....	24				8,500	Wind.....	Crop loss, \$4,000; property damage, \$4,500.
Prairie and Dawson Counties, Mont.....	25	5 p. m.....			40,000	Heavy hail.....	Loss in wheat; path 20 miles long.
De Soto to Linwood, Kans., and vicinities.	26	2:30 p. m.....	12	0	4,000	Tornado.....	A vortex cloud observed; property damaged; path 8 miles long.
Madison, Fla., 4 miles north.	26	3 p. m.....	33	0	600	do.....	Crop loss, \$100; property damaged, \$500; path from 2 to 3 miles long.
Prairie and Dawson Counties, Mont.....	27	2-5 p. m.....			30,000	Wind and hail....	Loss chiefly in wheat; property damaged; path 50 miles long.
Fergus County, Mont.....	28	3-6 p. m.....			250,000	Heavy hail.....	Loss principally in wheat. Storm traveled a narrow strip north of Denton to the Missouri River northeast of Winifred; path 50 miles long.
New York State, western, central, and northern portions.	28			1		Severe thunderstorm.	In Jefferson County hundreds of trees were blown down, miles of telephone and power lines leveled and much damage to houses and barns. Many highways blocked by fallen trees. There was much damage in Syracuse, Cortland, and Ithaca. Numerous fires caused by lightning reported.
Marietta, Ohio.....	29	4 p. m.....			500	Heavy rain.....	Basements and streets flooded with damage to church basement of \$500.
Elbing, Kans.....	29	6 p. m.....	1,32	0 0	2,500	Tornado.....	Number of farm buildings wrecked and telephone lines down; path 3 miles long.
Osceola, Nebr., vicinity of.	30	10:30 a. m.....			10,000	Hail.....	Much corn damaged; path 3 miles long.
Elida, N. Mex.....	30	Noon-12:10 p. m.			1,000	Heavy hail.....	Loss to crops; poultry killed.
Norfolk, Va.....	31				500	Electrical.....	Property damaged.

¹ Miles instead of yards.

SOLAR RADIATION AND SUNSPOT DATA FOR JULY 1941

SOLAR RADIATION OBSERVATIONS

By HELEN CULLINANE

Measurements of solar radiant energy received at the surface of the earth are made at 9 stations maintained by the Weather Bureau and at 12 cooperating stations maintained by other institutions. The intensity of the total radiation from sun and sky on a horizontal surface is continuously recorded (from sunrise to sunset) at all these stations by self-registering instruments; pyrheliometric measurements of the intensity of direct solar radiation at normal incidence are made at frequent intervals on clear days at three Weather Bureau stations (Madison, Wis.; Lincoln, Nebr.; and Albuquerque, N. Mex.) and at the Blue Hill Observatory at Harvard University. Occasional observations of sky polarization are taken at the Weather Bureau station at Madison and at Blue Hill Observatory.

The geographic coordinates of the stations, descriptions of the instrumental equipment, station exposures, and methods of observation, together with summaries of the data obtained, up to the end of 1939, are given in the MONTHLY WEATHER REVIEW for December 1937 and April 1941.

Table 1 contains the measurements of the intensity of direct solar radiation at normal incidence, with means and their departures from normal (means based on less than 3 values are in parentheses). At Lincoln, Madison, Albuquerque, and Blue Hill the observations are obtained

with a recording thermopile, checked by observations with a Smithsonian silver-disk pyrheliometer at Blue Hill. The table also gives vapor pressures at 7:30 a. m. and at 1:30 p. m. (75th meridian time).

Table 2 contains the average amounts of radiation received daily on a horizontal surface from both sun and sky during each week, their departures from normal and the accumulated departures since the beginning of the year. The values at most of the stations are obtained from the records of the Eppley pyrheliometer recording on either a microammeter or a potentiometer.

In compliance with numerous requests received, the Solar Radiation Investigations Section will from now on publish daily totals for table 2 for all stations except Fairbanks, Alaska, as well as the weekly means previously published. If the daily figures for total solar and sky radiation at Fairbanks should be desired, they may be obtained approximately 2 months after the date of the observation by writing to the Solar Radiation Investigations Supervisory Station, Blue Hill Observatory, Milton, Mass.

Radiation at normal incidence was below normal at Madison, Wis.

Total solar and sky radiation during July was below normal at Washington, New York, Cambridge, Fairbanks, La Jolla, and Newport, and excessive at all other stations, with the exception of Albuquerque, where it was approximately normal. Attention is called to the fact that radiation data for State College, Pa., appear in table 2 for the first time.